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the dam comprises a portion of the substrate surrounding the depression.

- O 8. The device of claim 1, wherein:
the dam comprises a bead of the fill material; and
the substrate comprises a treated region on which the bead, the treated region such that the fill material when liquid has a higher affinity for the treated region than for an adjacent region of the substrate so that the treated region confines and shapes the fill material when the fill material is liquid.
- O 9. The device of claim 8, wherein the treated region of the substrate comprises a region of material on the substrate.
- O 10. The device of claim 9, wherein the material of the treated region comprises a substance selected from the group consisting of polymers, metals, ceramics, and combination thereof.
- O 11. The device of claim 8, wherein the treated of the substrate comprises a roughened portion of the substrate.
- O 12. The device of claim 8, wherein the treated regions is such that beading of the fill material on the treated region prevents formation of thin fillet regions of the fill material.
- A 13. A packaged device comprising:
a substrate including conductive traces and a treated region;
a die having contacts formed on a major surface of the die, the die being placed so that the contacts electrically connect to the conductive traces of the substrate; and
a fill material filling of a gap between the die and the substrate and forming a bead on the treated regions, wherein the treated region is such that the fill material when liquid has a higher affinity for the treated region than for an adjacent region of the substrate so that the treated

region confines the fill material when liquid and shapes the bead.

A 14. The device of claim 13, wherein the treated region of the substrate comprises a region of a material on the first portion of the substrate.

A 15. The device of claim 14, wherein the material comprises a substance selected from the group consisting of polymers, metals, ceramics, and combination thereof.

A 16. The device of claim 13, wherein the treated of the substrate comprises a roughened portion of the substrate.

A 17. The device of claim 13, wherein the treated regions is such that beading of the fill material on the treated region prevents formation of thin fillet regions of the fill material.

issued

DETAILED ACTION

1. Claims 19-24 are allowed over the prior art of record.

Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance: The primary reason for allowance of the claims is that the prior art neither teaches nor fairly suggest the method for packaging an integrated circuit die as presented in the independent claim 19. Major emphasis is being placed upon the provision of *"treating the face of the substrate so that a fill material when liquid has a higher affinity for a first portion of the substrate and a lower affinity for a second portion of the substrate, wherein the first portion surrounds an area where the die attaches to the substrate and the second portion surrounds the first portion"*, in combination with other limitations of the said claim and its dependent ones.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica D. Harrison whose telephone number is 571-272-1959. The examiner can normally be reached on M-F 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.